

<b>Notice of Allowability</b>	Application No.	Applicant(s)	
	10/772,087	MATSKO ET AL.	
	Examiner	Art Unit	
	Brian M. Healy	2883	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the application filed 02/03/2004.
2. ☒ The allowed claim(s) is/are 1-31.
3. ☒ The drawings filed on 02/03/2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

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| <ol style="list-style-type: none"> <li>1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br/>Paper No./Mail Date <u>05172005 12 21 2004</u></li> <li>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br/>of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</li> <li>6. <input type="checkbox"/> Interview Summary (PTO-413),<br/>Paper No./Mail Date _____</li> <li>7. <input type="checkbox"/> Examiner's Amendment/Comment</li> <li>8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9. <input type="checkbox"/> Other _____</li> </ol> |
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**Brian Healy**  
**Primary Examiner**

### **REASONS FOR ALLOWANCE**

The following is an Examiner's Statement of Reasons for Allowance: The closest prior art of record, i.e. Maleki et. al., U.S.P. No. 6,490,039 teaches an optical resonator device that includes a Micro Whispering Gallery Modes Resonator 201 which acts to couple light signals from an evanescent coupler 210 to an optical detection module 230 to a signal processing module 240 for detecting whispering gallery modes. Maleki et. al. 039' does not teach or suggest the claimed device and method comprising: an optical resonator configured to support whispering gallery modes and also comprising: a plurality of sectors that are optically nonlinear and each exhibit an electro-optic effect, wherein nonlinear coefficients of two adjacent sectors are oppositely poled and an electrical waveguide located relative to the optical resonator to guide an electrical oscillation signal into the optical resonator to spatially overlap with whispering gallery modes and to modulate an index of the optical resonator via the electro-optical effect. These limitations are recited in independent claims 1 and 18. Dependent claims 2-17 and 19-24 are inclusive the limitations of the independent claims and also includes additional limitations (See dependent claims for these limitations). Independent claim 25 includes the limitations of claim 1 with the additional limitations that the non-linear sectors are arranged in a quasi phase matching configuration for nonlinear wave mixing for input and output signals in first and second whispering gallery modes. Dependent claims 26-31 <sup>also</sup> ~~also~~ includes the limitations of claim 25 (see dependent claims for other

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additional limitations). Thus claims 1-31 are considered to be patentable over the teachings of Maleki et. al. '039 and all of the prior art of record.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103(a), the Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR § 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Examiner to consider the applicability of 35 U.S.C. § 103(c) and potential 35 U.S.C. §§ 102(e), (f) or (g) prior art under 35 U.S.C. § 103(a).

A copy of PTO-1449 will be included in this office action. The following references are also cited by the Examiner (listed on PTO-892) as being pertinent prior art, however the claimed limitations of the present application are patentably distinguishable over these references: Fischer, U.S. Patent Application Publication No. US 2003/0123780A1 (Figs.1-11), Painter et. al., U.S. Patent Application Publication No. U.S. 2002/0081055A1 (Figs.1-27B) and Matsko et. al., U.S. Patent Application Publication No. U.S. 2004/0218880A1 (Figs.1-17B).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian M. Healy whose telephone number is (571)272-2347. The examiner can normally be reached on Compressed schedule Tues.-Thurs. 7AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571)272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**Brian M. Healy**  
**Primary Examiner**  
**Art Unit 2883**

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A handwritten signature in black ink, appearing to read "Brian M. Healy", written in a cursive style.

**Brian Healy**  
**Primary Examiner**